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(54) IMPROVEMENTS IN OR RELATING TO DISPENSING  
 TUBE ASSEMBLIES

(71) We, FLEXTAINERS LIMITED, a British Company of Bessemer Drive, Stevenage, Hertfordshire, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention concerns improvements in or relating to dispensing tube assemblies suitable to contain spreadable or paste like substances such as adhesives, ointments, creams, cosmetic materials, relishes, edible pasty or spreadable substances and the like.

According to the invention there is provided a dispensing tube assembly comprising a squeezable dispensing tube having a nozzle at one end and a removable closure member for said nozzle, said closure member including a flexible, elongate, generally flat spreader blade which when the tube nozzle is closed by the closure member extends into the nozzle.

Tubes used in the assembly according to this invention may be made wholly of a plastics material or may be extruded metal tubes having integral metal nozzles or having plastics nozzles fitted thereto. In either case the closure member will preferably be made of thermoplastics materials such as plasticised polyvinylchloride, polyethylene, or polypropylene. The said closure member may be formed to engage over the nozzle of the tube like a cap in which event said blade which will extend from the inside of the closure will first be inserted into the nozzle.

However it is preferred to have a plug type closure which engages in the nozzle to close the tube, the flexible blade being connected to or integral with such plug type closure member. The blade serves also to prevent plugging of the nozzle due to possible hardening of the product.

The blade of a generally flat form

facilitates the spreading of contents squeezed out of the tube. The cross section of the aperture through the nozzle may be of similar shape to that of the blade although this is not essential provided that the blade can readily enter and be withdrawn from the nozzle. The closure member will always be provided with means to provide a secure closure for the nozzle. Thus the plug may have one or more ribs or detents adapted to make a snap fit in the nozzle. Alternatively the plug may fit tightly in the nozzle.

Preferably the nozzle is of such length and shape that when it is closed the blade does not extend into the body of the tube.

If desired the outer end of the closure member may be provided with a hole there through or a hooklike portion to enable the tube assembly to be hung up when not in use.

One preferred embodiment of the invention by way of example only will now be described with reference to the accompanying drawings in which:—

Figure 1 is a side elevation of a closed tube according to the invention.

Figure 2 is an end elevation of the tube of Figure 1 with the closure member removed and

Figure 3 is a top plan view of the open tube of Figure 2.

A tube suitable particularly for adhesive paste is formed of polyethylene and comprises a body 1, shoulders 2 and an integral nozzle portion 3 of rectangular cross section and of tapered shape. The tube is sealed at 4 in a conventional manner after filling with product and the nozzle has a generally ablong aperture 5 therethrough.

A plug type closure member of polyethylene or suitable thermoplastics material is provided. This member comprises a grippable portion 6, shoulders 7 adapted to seat on the outer surface 8 of nozzle 3, a

closure part 9 adapted to close securely aperture 5 and a flat flexible blade 10 of a width slightly less than that of the aperture 5.

- 5 It will be seen that closure part 9 has a rib 11 on each side which makes a snap engagement in the aperture 5.

It will also be noted that the length of blade 10 is such that when the tube is closed, the tip of the blade will not extend beyond the shoulders 2 into the body of the tube.

- 10 A tube and closure has thus been provided which can readily dispense desired quantities of the contents which can then be spread over a surface prior to reclosing the tube.

#### WHAT WE CLAIM IS:—

- 20 1. A dispensing tube assembly comprising a squeezable dispensing tube having a nozzle at one end and a removable closure member for said nozzle, said closure member including a flexible elongate generally flat spreader blade which when the tube 25 nozzle is closed by the closure member extends into the nozzle.

2. An assembly as claimed in claim 1, wherein said closure member is made of a 30 thermoplastics material.

3. An assembly as claimed in claim 1 or 2, wherein said closure member is in the form of a cap shaped to engage over the nozzle of the tube to close said tube.

4. An assembly as claimed in claim 1 35 or 2, wherein said closure member is in the form of a plug which engages in said nozzle to close said tube.

5. An assembly as claimed in any preceding claim wherein said nozzle has an 40 opening of similar shape to the cross section of said blade.

6. An assembly as claimed in claim 4, wherein the plug may have one or more ribs or detents adapted to make a snap fit 45 in the nozzle.

7. An assembly as claimed in any preceding claim wherein the nozzle is of such length and shape that when it is closed the blade does not extend into the body of the 50 tube.

8. An assembly as claimed in any preceding claim, wherein a hole extends through said closure member to enable said tube to be hung up when not in use. 55

9. A dispensing tube assembly substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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